

JOINT COMMENTS OF THE

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RESPONSE TO THE

**NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY,
U.S. DEPARTMENT OF COMMERCE**

REQUEST FOR INFORMATION

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Introduction

The Public Utility Commission of Texas (PUCT) and the California Public Utilities Commission (CPUC) hereby submit joint comments on several questions posed by the National Institute of Standards and Technology (NIST) and the Department of Commerce (DOC) in the Request for Information (RFI) issued on December 8 2010.¹ Over the course of the last year, the two commissions (herein referred to as “Staff”) have coordinated on many issues related to Smart Grid and cyber-security, particularly on the implementation of advanced meters. These comments address the issues related to the NIST process, the adequacy of utility commission resources for participation in the many Smart Grid standards committees and groups, and the approach that NIST has taken on the standards effort. Because significant deployment of existing standards-based Smart Grid technology has taken place in each state, mainly related to advanced metering, these issues are of extreme importance to both states. Each state has authorized billions of dollars for customer investment that has been made in the Smart Grid. Decisions made in the NIST standards development effort needs to include the impacts upon facilities that are currently deployed and the expertise gained from each deployment.

The three major electric Investor Owned Utilities in California have deployed over 7 million advanced meters across their territories. San Diego Gas and Electric Company is expected to complete deployment of advanced meters this year, and Southern California Edison Company and Pacific Gas & Electric Company will complete their deployment in 2012; upon completion, the utilities will deploy over 11 million advanced meters at a cost of over \$6 billion. This deployment of advanced meters created an infrastructure that allows for hourly metering of data, available one day later to customers, to give customers the opportunity to take more control over their usage. The advanced meters also come with the ability to transmit information inside the house via the Home Area Network (HAN), although most HAN communications are not enabled at this time. The CPUC is also in the process of developing privacy and third party access rules to allow customers to grant access to their usage information to an authorized third party. Additionally, the CPUC is directed by statute to create requirements for the development of a Smart Grid Deployment Plan to be filed by each Investor Owned Utility. The requirements include: Smart Grid Vision Statement, Smart Grid Deployment Baseline, Smart Grid Strategy, Smart Grid Roadmap, Cost Estimates, Benefits Estimates, Metrics and Grid and Cyber-Security Strategy.² These Deployment Plans are to be filed with the CPUC by July 1, 2011.

In Texas, more than two million meters have been installed. The PUCT has approved over \$2 billion dollars in Smart Grid investment for the deployment of smart meters in the Electric

¹ Fed.Reg. 76397, Vol. 75, No. 235 (Dec. 8, 2010).

² D.10-06-047, “Decision Adopting Requirements for Smart Grid Deployment Plans Pursuant to Senate Bill 17 (Padilla), Chapter 327, Statutes of 2009” (issued June 28, 2010). Available at http://docs.cpuc.ca.gov/PUBLISHED/FINAL_DECISION/119902.htm.

Reliability Council of Texas (ERCOT). ERCOT is an area open to retail competition that represents approximately 85% of the electric load and covers 75% of the state. The PUCT adopted a rule in May 2007 related to smart meter deployment.³ The rule addressed customer and Retail Electric Provider (REP) access to data, minimum standards for advanced metering systems (AMS) deployed, cost recovery, and utility deployment plans. The three largest utilities in ERCOT (CenterPoint Energy, Oncor Electric Delivery and American Electric Power-Texas) have received approval for the deployment of smart meters in their service territories. By the end of 2013, Texas will have over 6 million smart meters installed within the ERCOT service area. These meters are home area network (HAN) enabled, record and transmit data in 15-minute increments, and are required to adhere to ANSI standards for meter data storage and data transport.⁴ Home Area Network (HAN) devices that are connected to the utility AMS are also being provided to customers on a voluntary basis.

Comments on the NIST Process

The Smart Grid is an emergent technological ecosystem offering many possibilities to many different stakeholders, for many different reasons. Participation in developing standards is paramount to: defining interoperable requirements connecting the different software components and technologies comprising the Smart Grid; ensuring reliability, safety, security and privacy are adequately addressed; assisting in optimizing value and avoiding limiting Smart Grid potential; assisting in defining reasonable and necessary component performance characteristics comprising the Smart Grid; assisting in defining common ground for interaction between new groups of stakeholders participating in the Smart Grid; and providing the opportunity for educating participants in developing and supplying components for building and/or operating the Smart Grid.

State commissions maintain jurisdiction over the distribution grid and have the ultimate responsibility for adoption and enforcement of rules relating to utilities and the retail markets, including the functions and operations of electronic equipment that is a part of the distribution network or metering infrastructure. Staff has been involved in the process to create these standards on behalf of consumers funding this investment. It is important that the NIST-FERC process for adopting Smart Grid standards recognize the roles of the state commissions.

This process should result in the creation of a national set of standards that can provide direction for utilities, industry and market participants. Both commissions believe that the creation of

³ See PUC SUBST. R. §25.130, available online at:
<http://www.puc.state.tx.us/rules/subrules/electric/25.130/25.130ei.cfm>

⁴ The PUCT did not mandate a specific open standard for the HAN. The PUCT rule states that the system the utility deploys shall have the “capability to communicate with devices inside the premises, including, but not limited to, usage monitoring devices, load control devices, and prepayment systems through a home area network (HAN), based on open standards and protocols that comply with nationally recognized non-proprietary standards *such as* ZigBee, Home-Plug, *or the equivalent.*” (*Emphasis added.*)

open, national standards can create a level playing field across industry sectors and the market. In the long term, standards should ensure interoperability of devices across utility service territories and across the country. This national set of standards should recognize and encourage an ecosystem of existing and evolving standards - and not simply focus on a future set of standards that will be commercially available five to ten years from now. A balance must be struck between refining existing standards that enable deployment and allow for benefits to reach consumers today, while working to refine and create future standards to address the Smart Grid of tomorrow.

The Smart Grid is new and is being developed and deployed by region based on the local market, utility and/or regional needs. The Smart Grid Interoperability Panel (SGIP) has provided an excellent forum for those presenting different views to meet and develop common standards and recommendations sufficiently broad to define Smart Grid, albeit at a high level. Groups specializing in Smart Grid specifications and business requirements, such as UCAIug, ZigBee Alliance, and others provide additional opportunity to develop and influence Smart Grid related standards setting efforts. However, the SGIP is heavily influenced by manufacturing and non-utility representation. While utility representation is strong, the utility position tends to be factionalized based on the set of technology deployed by different utilities. In addition, there is a need in almost all of these working groups for subject matter experts in utility power systems engineering for most Smart Grid domains, especially for distribution, operations, customer transmission and bulk power generation. We believe that more focus needs to be placed on the entities responsible for implementing the Smart Grid – the state commissions and the utilities they regulate.

Comments on the Government's Approach to Standards Activity

This effort has been a tremendous undertaking by NIST. Traditionally, the development of standards requires a minimum of eight to ten years. NIST is facilitating an accelerated standard development process to create Smart Grid standards, and should be commended for its actions. Staff appreciates that NIST and FERC are both aware of the roles state commissions play in the regulation of utilities, as well as the role state commissions play in regard to the adoption of operating standards, and do take into consideration the concerns of state commissions. Staff has several recommendations, relating to acknowledgement of existing standards-based deployment and integration with legacy equipment, the role of FERC in the process, and the availability of standards.

As noted above, several large utilities in California and Texas are already deploying Smart Grid technology. Texas utilities, such as CenterPoint Energy, Oncor and AEP have already spent over \$1 billion in advanced metering deployments based on existing standards. CenterPoint Energy and Oncor expect to complete advanced metering deployment in 2012. As discussed above, California's Investor Owned Utilities, San Diego Gas & Electric, Southern California Edison,

and PG&E have deployed over 7 million advanced meters to date. Additionally, with the expected impacts of electric vehicles, solar, and related customer-side generation and storage facilities located on the distribution grid, advanced meters, and other advanced technology, provide the utility with much needed information about their system. Today's standards-setting needs to recognize the potential for creating early obsolescence for systems being deployed today and adding an undue cost burden to utilities and their customers.

In order to allow for a successful development of standards at the national level, Staff believes that FERC should be more active in the NIST standards development process. Pursuant to EISA, FERC is the agency directed to adopt standards that are developed by NIST. Staff believes that this process would benefit from increased involvement by FERC in the development of these standards to, at a minimum, provide additional guidance and support to NIST in its effort. This increased participation by FERC into the process could allow for a smoother process at FERC during any discussion of the adoption of standards.⁵

Finally, there is a concern about the difficulties encountered by Staff in acquiring and reviewing many of the standards under consideration. Some of the problems encountered by Staff include the cost of the standards themselves, which often exceed \$1,000 per standard, as well as the cost and difficulty to actively participate in the standard development process itself. The lack of staff expertise and the time required to effectively participate in the review of standards is a significant challenge. The CPUC, for example, is directed by statute to adopt standards.⁶ There are unanswered questions about the ability of the CPUC and other state commissions to fully investigate and eventually adopt, if necessary, standards that are costly to obtain, or whether or not state commissions can include such standards in any final rules or policies.

Comments on the Adequacy of Federal and State Resources

Staff would like to comment on two issues related to resources: availability of Federal resources, and the availability of state resources in the process.

NIST appears to have provided for adequate resources necessary to consider Smart Grid and cyber-security standards. However, NIST also relies on the time of volunteers and other interested persons and groups to work in the standards-setting process, and all those involved should be commended for their time and effort put into the process so far. This reliance upon volunteers does come with some risks concerning the adequacy of knowledge, and how to create voting rules and measures to ensure that certain industry groups do not have an unfair impact upon the process. Staff believes that additional involvement from FERC, or otherwise dedicated

⁵ Staff does not take a position in these comments on what "adoption" means at the FERC level. That question is the subject of an open proceeding at FERC, and should be handled in that proceeding. See, e.g., *Smart Grid Interoperability Standards*, "Supplemental Notice Requesting Comments," RM11-2-000 (issued Feb. 16, 2011).

⁶ California Public Utilities Code Sec. 8362(a).

individuals, would be a welcome addition to the process, and help address the potential for unfair practices.

The ability of commission staff to participate in the NIST process is severely restricted by travel constraints due to limited budgets, as well as general lack of availability of staff to participate in the process. Staff has made use of technology to participate remotely, but is often absent from in-person meetings where informal discussions often occur. This lack of interaction from Staff and other state commission staff potentially leaves state commissions at a disadvantage in adopting policies in this area, where state actions are dependent upon standards adopted at a national level.

Conclusion

- Both commissions believe that the creation of open, national standards can create a level playing field across industry sectors and the market. In the long term, standards should ensure interoperability of devices across utility service territories and across the country. This national set of standards should recognize and encourage an ecosystem of existing and evolving standards - and not simply focus on a future set of standards that will be commercially available five to ten years from now. A balance must be struck between existing standards that enable deployment and allow for benefits to reach consumers today, while working to refine and create future standards to address the Smart Grid of tomorrow.
- More focus needs to be placed on the entities responsible for implementing the Smart Grid – the state commissions and the utilities they regulate.
- Within the NIST process, there is a need for subject matter experts in utility power systems engineering for most Smart Grid domains especially for distribution, operations, and customer transmission and bulk power generation.
- The lack of staff expertise and the time required to effectively participate in the review of standards is a significant challenge. This could be addressed through targeted outreach by NIST to the state commissions. For example, industry conferences and regional events attended by regulators are an excellent opportunity to engage in discussions with the state commissions.
- We believe that FERC should take a leadership role in the development of these standards to provide additional guidance and support to NIST in its effort.
- Significant deployment of existing standards-based Smart Grid technology has taken place in each state, mainly through advanced metering, and this should be recognized.
- Both states have authorized billions of dollars for customer investment that has been made in the Smart Grid.
- Decisions made in the NIST standards effort need to include existing deployment and the expertise gained from currently deployed facilities.